

REMARKS AND ARGUMENTS

Claims 40-51, 68-72, and 74-75 are pending in the present application. Claims 40, 43-51 and 68-72 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yamamoto in view of Akram, "admitted prior art" (hereinafter "APA"), and U.S. Patent No. 5,678,301 to Gochnour et al. (hereinafter "Gochnour"). Applicant respectfully traverses these rejections.

The Office Action states that Yamamoto discloses a semiconductor device comprising a metal contact formed on the surface thereof; a first insulator layer overlying the metal contact; a metal pad overlying the first insulator layer and in contact with the metal contact; a second insulator layer overlying the metal pad; and a solder ball formed in the second insulator layer and in contact with the metal pad. The Office Action further states (1) that Akram discloses solder microbumps having a diameter of 15-100 microns as well as forming such microbumps on a die; (2) that the APA discloses using solder balls of 100 micron diameter in C4 bonding of an integrated circuit to a substrate; and (3) that Gochnour teaches using solder contacts/microbumps having a diameter between 8-50 microns on a substrate where the substrate is in a form of a wafer which is conventionally diced into chips or dice. The Office Action concludes that it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to use the microbumps from Akram and Gochnour in Yamamoto's device to obtain the claimed invention.

Title 35 U.S.C. section 103(c) states:

(c) Subject matter developed by another person, which qualifies as prior art only under one or more subsections (e), (f), and (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

35 U.S.C. § 103(c). Here, the subject matter of both Akram and Gochnour and the

claimed invention were owned by the same person (Micron Technology, Inc.) at the time the present invention was made. To support this contention, Applicant has attached a copy of the assignment filed for present application. Since both Akram and Gochmour fall within 35 U.S.C. § 103(c), both references are disqualified as prior art for the purposes of the present § 103(a) rejection.

Applicant has amended claims 40 and 71 to reflect their scope before the improper citation of Akram. Additionally, Applicant has added claims 74 and 75, reciting claims 41 and 42, respectively, as originally filed, which were originally canceled in light of Akram.

In light of the foregoing amendments and reasons, claims 40 and 71 are allowable. Claims 43-51, 68-70, and 74-75 depend from claim 40 and are allowable along with claim 40. Claim 72 depends from claim 71 and is allowable along with claim 71. Accordingly, the rejections should be withdrawn and the claims allowed.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

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Respectfully submitted,

By 

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Version With Markings to Show Changes Made

40. (Twice amended) A semiconductor device comprising:

a semiconductor structure having at least one metal contact formed on a surface thereof;

a first insulator layer overlying said at least one metal contact;

at least one metal pad overlying said first insulator layer and in contact with said at least one metal contact;

a second insulator layer overlying said at least first one metal pad; and,

at least one solder contact formed in the second insulator and in contact with said at least one metal pad, said solder contact having a diameter less than 100 [15] microns.

71. (Twice amended) A semiconductor device formed on a semiconductor substrate having at least one metal contact formed thereon, said semiconductor device comprising:

a first insulator layer overlying said at least one metal contact;

at least one metal pad overlying said first insulator layer and in contact with said at least one metal contact;

a second insulator layer overlying said at least first one metal pad; and

at least one solder contact formed in the second insulator and in contact with said at least one metal pad, said solder contact having a diameter between 2 and 100 [15] microns.